

The claims have been amended as noted above. Reexamination and reconsideration of the claims, as amended, are respectfully requested.

Claims 22 and 25-28 were rejected under 35 USC §101 as being directed at non-statutory subject matter. This rejection has been overcome by amending independent claim 22 to recited that the method steps are being performed on a computer system. It is believed that limiting the claims to methods performed on a computer system removes these claims from the realm of mere mental calculations as discussed with the Examiner at the Interview.

Claim 19-21 were rejected as being obvious over the teachings of U.S. Patent No. 5,879,158, to Doyle et al. Such rejection is traversed in part and overcome in part.

Applicants do not believe that Doyle et al. ever specifically teaches manipulating a visual image as contemplated by the present invention. Instead, Applicants believe that Doyle et al. at best teaches manipulating data representing the image and simultaneously or subsequently displaying the image on a video display. See, for example, the teaching at col. 7, lines 51-59. While it is taught that "the teeth are distributed on the video display evenly and symmetrically along their respective arch wires", there is no further teaching that distribution is achieved by manipulating the visual image. Similarly, at col. 9, lines 50-60, it is taught that a visual display consisting of "the virtual model of the patient's teeth" is saved in a computer memory, there is no specific teaching that the models obtained by manipulating a visual image, rather than by other computer manipulations. Similarly, the language pointed to by the Examiner at col. 13, lines 20-25, is inconclusive. There is certainly a teaching that an image of teeth is presented on a video display, but no specific teaching that the image has been produced by manipulating a visual image as opposed to manipulating data which is then later displayed as a visual image.

In an effort to expedite the present prosecution, however, Applicants have elected to amend claim 19 to further set forth the step of "producing a plurality of intermediate digital data sets representing a series of successive tooth arrangements progressing from the initial tooth arrangement to the final tooth arrangement." Thus, even conceding that the first four steps of claim 19 are taught in Doyle et al. (for the purposes of argument only), it is submitted that the new fifth step is not remotely suggested in Doyle or (for the reasons

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described below) in the Andreiko '243 patent which has been cited against other claims herein. Applicants further reserve the right to argue the patentability of claim 19 over the Doyle et al. '158 patent and/or swear behind the Doyle et al. '158 patent in a subsequent application.

Claims 22, 23, 25-30, and 32-35, were rejected as being obvious over Andreiko '243. Such rejections are respectfully traversed.

The Examiner characterizes Andreiko as showing "a computer method including receiving initial data and generating final positions through calculations and . . . calculating in several steps of movements . . . These calculations inherently provide a set of intermediate positions." Applicants respectfully disagree.

Claim 22, even prior to the Amendment made to overcome the §101 rejection, set forth a method which required providing a digital data set representing an initial tooth arrangement, providing a digital data set representing a final tooth arrangement, and **based on the provided digital data sets**, producing a plurality of successive digital sets representing the successive tooth arrangements. Andreiko '243 does not show such method. While it might be argued that Andreiko does show the digital manipulation or data to move teeth from an initial position to a final position, there can be no argument that Andreiko teaches or suggests determining a number of intermediate positions based on a previously supplied an initial position and a final position. Applicants believe that such a temporal limitation was already present in claim 22, but have amended claim 22 to further recite that the data sets are "previously" provided data sets. Independent claim 29 has been similarly amended. Thus, it is believed that claims 22 and 29, as well as all claims dependent thereon, distinguish over Andreiko '243, even if combined with the teachings of Doyle et al.

It is believed that the rejection of dependent claims 24 and 31 over the combination of Andreiko '243 and Doyle et al. must fail for the reasons sets forth with respect to the independent claims 22 and 29. In particular, nothing in Doyle et al. would overcome the deficiencies of Andreiko '243 as discussed above.

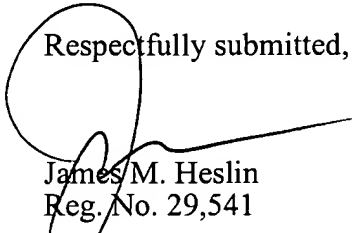
Finally, Applicants are submitting a Terminal Disclaimer herewith which overcomes the provisional obviousness-type double patenting rejection.

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In view of the above amendments and remarks, Applicants believe that all pending claims are now in condition for allowance and request that the application be passed to issue at an early date.

If for any reason the Examiner believes that a telephone conference would in any way expedite prosecution of the subject application, the Examiner is invited to telephone the undersigned at 650-326-2400.

Respectfully submitted,

  
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Attachment: *Terminal Disclaimer & Fee Authorization*

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